

REMARKS

Favorable reconsideration of this application, in view of the present amendments and in light of the following discussion, is respectfully requested.

This amendment is submitted in accordance with 37 C.F.R. § 1.116, which after final rejection permits entering of amendments canceling claims, complying with any requirement of form expressly set forth in a previous Office Action, or presenting rejected claims in better form for consideration on appeal. The present amendment places the claims in condition for allowance, and does not raise new issues requiring further consideration and/or search.

Therefore, it is respectfully requested that the present amendment be entered under 37 C.F.R. § 1.116.

Claims 1-2, 4-17 are pending. Claims 1, 4, 16 and 17 are amended. No new matter is introduced.

In the outstanding Office Action, Claims 1-2, 4-9 and 12-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach (U.S. Patent No. 4,885,782) in view of Fujimori (U.S. Patent No. 6,026,169); Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach and Fujimori in view of Packard (U.S. Patent No. 7,035,417); and Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach and Fujimori in view of Hirade (U.S. Patent No. 7,199,267, hereafter “Hirade”).

Applicants thank the courtesy of Examiner Monikang to interview this case with Applicants’ representative on March 11, 2009. During the interview the outstanding issues in this case were discussed, as summarized herein below and in the Interview Summary, which the Examiner has made of record. Examiner Monikang noted that amending the claims to include “preprocessing” the input signal may overcome the cited references, but further search and consideration is necessary. The claims have been so amended.

In reply to the rejection of Claims 1-2, 4-9 and 12-17 as being unpatentable over Eberbach in view of Fujimori, Claim 1 is amended to recite, *inter alia*, an audio signal processing apparatus adapted for delivering an audio signal to a speaker system, and further recites that the audio signal processing apparatus includes:

a frequency dividing filter configured to output portions of a *preprocessed audio signal*, input thereto, as separate frequency components;

at least two drive units, which are divided or separated by frequency band, configured to receive the separate frequency component output from the frequency dividing filters;

an FIR filter configured to generate the preprocessed audio signal by *preprocessing an input audio signal* on the basis of an inverse correction characteristic corresponding to an overall impulse response of the speaker system, the input audio signal being preprocessed to compensate for a shift between phases of respective sound waves radiated from respective drive surfaces of the at least two drive units of the speaker system, the shift being caused by relative physical locations of the respective drive surfaces. (Emphasis added).

Turning to the applied references, Eberbach describes loud speaker driver configurations that compensate for the relative position of high frequency drivers to low frequency drivers.¹ Eberbach illustrates a symmetric driver arrangement where low frequency drivers (22 and 24), located above and below a high frequency driver (26),² are connected to a crossover circuit (28).³ The high frequency driver (26) is also connected to the crossover circuit through a delay (30).⁴ The delay (30) may be solely electrical or may be a combination of electrical and axial adjustments of the high frequency drivers (26), and maybe adjusted to provide wide angle dispersion with accurate phase response.⁵ However, as acknowledged in the outstanding Office Action, Eberbach does not disclose the claimed FIR

¹ Eberbach at column 1, lines 18-45.

² Eberbach at column 3, lines 34-40; see also Figures 2 and 3.

³ Eberbach at column 3, lines 39-45.

⁴ Eberbach at column 3, lines 39-45.

⁵ Id.

filter.⁶ To remedy this deficiency in Eberbach, the outstanding Office Action combines Eberbach with Fujimori.

Fujimori describes a sound image localization device capable of making clear a difference in feeling of localization between a sound image localized in a forward position and a sound image localized in a rearward position.⁷ Fujimori describes that an input signal is divided into a left and right channel (ASL and ASR), and input into a delay circuit (1) and a phase interpolation filter (15).⁸ Fujimori illustrates that the delay circuit (1) and a multiplier (3) are connected in series to an input of a crosstalk canceller (11).⁹ The phase interpolation filter (15) is connected to a multiplier (4) via a delay circuit (2), and the multiplier (4) is connected to a second input of the crosstalk canceller (11).¹⁰ Fujimori further describes that the parameters of the phase interpolation filter (15), delay circuits (1 and 2), and multipliers (3 and 4) are controlled by a control parameter generator (10) connected to an image operation location unit (9).¹¹

The outstanding Office Action appears to identify the crosstalk canceller (11) of Fujimori as corresponding to the claimed FIR filter.¹² However, Fujimori does not describe that the crosstalk canceller (11) *preprocesses* the input signal. Instead, the crosstalk canceller (11) of Fujimori processes the input signal *after it has been divided into a left and right channel signal* and processed by the phase interpolation filter (15), delay circuits (1 and 2), and multipliers (3 and 4).¹³ Conversely, amended Claim 1 recites an FIR filter configured to generate the preprocessed audio signal by *preprocessing an input audio signal*. Therefore, Fujimori fails to disclose the claimed FIR filter, and no combination of Eberbach and

⁶ See the outstanding Office Action at page 3, item 4.

⁷ Fujimori at column 2, lines 25-33.

⁸ Fujimori at column 6, lines 10-35; see also Figure 4.

⁹ Id.

¹⁰ Id.

¹¹ Id.

¹² See the outstanding Office Action at page 3, item 4.

¹³ Fujimori at column 6, lines 40-45, and Figure 4.

Fujimori describes every feature recited in amended Claim 1. As such, amended Claim 1, together with its corresponding dependent claims, is believed to be in condition for allowance.

Moreover, amended Claims 4, 16 and 17 recite features substantially similar to those recited in amended Claim 1, and are therefore believed to be in condition for allowance, together with their corresponding dependent claims, for substantially the same reasons. Accordingly, it is respectfully requested that the rejection of Claims 1-2, 4-9 and 12-17 under 35 U.S.C. § 103(a) be withdrawn.

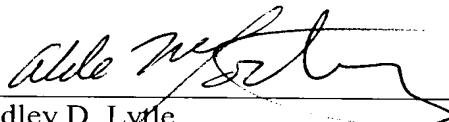
As all other rejections of record rely on Fujimori for describing the above-distinguished features, and the above-distinguished features are not disclosed or suggested by Fujimori, alone or in combination with any other art of record, it is respectfully submitted that a *prima facie* case of obviousness has not been presented. Therefore, it is respectfully requested that the rejection of Claims 10 and 11 under 35 U.S.C. § 103(a) be withdrawn.

For the reasons discussed above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore a Notice of Allowance for Claims 1-2, and 4-17 is earnestly solicited.

Should, however, the above distinctions be found unpersuasive, it is respectfully requested that the Examiner provide an explanation via Advisory Action pursuant to MPEP § 714.13 specifically rebutting the points raised herein.

Respectfully submitted,

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